

VIII. ABSTRACT OF THE DISCLOSURE

An acoustic transducer comprising a substrate; and a diaphragm formed by depositing a micromachined membrane onto the substrate. The diaphragm is formed as a single silicon chip using a CMOS MEMS (microelectromechanical systems) semiconductor fabrication process. The curling of the diaphragm during fabrication is reduced by depositing the micromachined membrane for the diaphragm in a serpentine-spring configuration with alternating longer and shorter arms. As a microspeaker, the acoustic transducer of the present invention converts a digital audio input signal directly into a sound wave, resulting in a very high quality sound reproduction at a lower cost of production in comparison to conventional acoustic transducers. The micromachined diaphragm may also be used in microphone applications.